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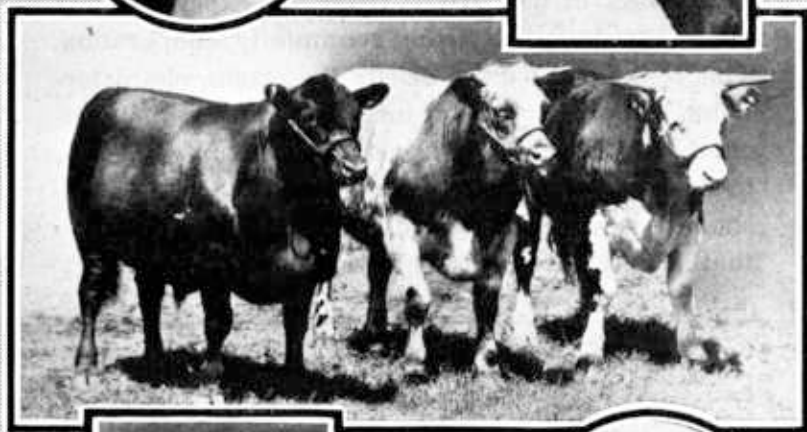
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BREEDS *of* BEEF CATTLE



SELECTING A BREED.

“**W**HAT is the best breed of beef cattle?” In most instances the reply to this frequent question properly could be “There is no best breed” or “They are all good.” No one breed has any great advantage over the others for the production of desirable beef. The chief differences usually observed are those of breed characteristics, although where all the breeds are kept under the same conditions and for the same specific purposes, certain peculiarities or advantages of one breed over another are noted.

As a rule, one should select the breed of his choice, especially if it is the breed prevailing on farms or ranches in his home community, for there are many advantages to be derived from the experiences of other breeders and from community cooperation. This bulletin discusses briefly the origin, characteristics, and other points of interest regarding the principal beef breeds. After gaining such information, the prospective breeder—especially a beginner—should visit well-bred herds of the various breeds so that he may see and study the animals themselves.

Contribution from the Bureau of Animal Industry

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Washington, D. C.

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BREEDS OF BEEF CATTLE.¹

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DEVELOPMENT OF CATTLE BREEDS.

FROM earliest times cattle have contributed meat to the food supply of man. It was not until the latter part of the eighteenth century, however, that systematic efforts were made to develop and maintain breeds of cattle especially suited for the production of beef of a better quality. Careful selection and breeding, begun in England and Scotland by Robert Bakewell, Colling Brothers, Amos Cruickshank, Richard Tompkins, and Hugh Watson, and carried on later by breeders in this country, resulted in establishing breeds now kept primarily for the production of beef.

Cattle formerly used for beef were deficient in flesh on parts of the carcass where meat of the highest quality is found. Skillful breeding combined with careful selection and feeding have brought about changes and development in the form of some breeds so that greater quantities of meat are found in the portions of the body (the loin, ribs, hind quarters) from which the highest-priced cuts are obtained. These cattle belong to what are now known as beef breeds to distinguish them from breeds which have been developed mainly for milk and butterfat.

In the process of developing strictly beef breeds on the one hand and dairy breeds on the other, there have been evolved families and in some cases "breeds" of cattle which would be classed as neither strictly beef nor dairy breeds. The cows produce a moderate quantity of milk and their calves develop into fairly good beef animals. These are known as dual-purpose breeds.

¹ A revision of F. B. 612, *Breeds of Beef Cattle*, by W. F. Ward, Animal Husbandry Division, issued in 1915.

THE BEEF BREEDS.

The breeds of beef cattle in the United States are the Shorthorn (both horned and polled), Hereford (both horned and polled), Aberdeen Angus, and Galloway. Each of these breeds has been carefully selected and bred for a long period of years, with the result that individuals transmit their breed characters very readily; hence their value and importance for use in improving or grading up native or scrub cattle.

With frequent exceptions, especially the Shorthorn, the cows of the beef breeds are not heavy milkers, and in this point lies their success as desirable and economical producers of beef. The heavy milking tendency, as with the dairy breeds, is associated with



FIG. 1.—Shorthorn bull.

a conformation of body which prevents the animal from yielding the greatest quantity and the best quality of beef. The beef breeds have been bred for the maximum production of beef, and in most instances only enough milk is desired to nourish and produce a good, thrifty calf. They are most popular with farmers or ranchers who raise a considerable number of cattle. Beef cows of the heavier milking families are also popular for farmers who desire to raise beef calves and at the same time have milk enough in addition to supply the family needs for milk and butter, or have a surplus to market.

SHORTHORN.

Of the breeds of beef cattle in the United States, the Shorthorn is the most extensively grown. The first importations were made in

1783 by Miller and Gough, of Virginia and Maryland, respectively. These cattle were brought from the Tees River Valley, in north-eastern England, where they were sometimes spoken of as Teeswater, or Durham, cattle. These names are practically obsolete, and now only the name Shorthorn is used. Such men as Colonel Lewis Sanders, of Kentucky, who imported Shorthorns in 1817, Samuel Thorne, of New York, who in 1853 imported Duehesses and the famous Cherry, Abram Renick, who produced the famous bull Airdrie, and R. A. Alexander, of Kentucky, may be considered the founders of the Shorthorn breed in America. Later, the Ohio Importing Company was organized by some of these men and others to promote the industry.

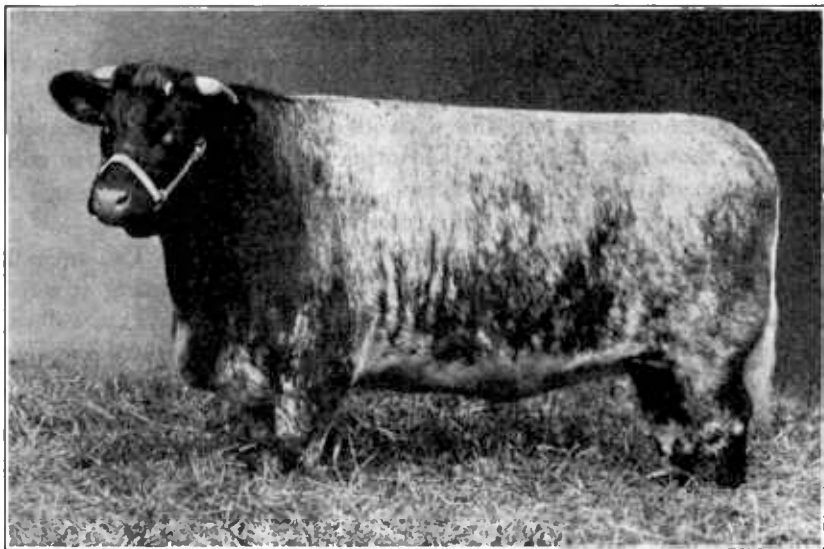


FIG. 2.—Shorthorn cow.

Previous to 1883 there were three separate herdbooks for Shorthorn cattle, the first having been published in 1846. At the first national convention of Shorthorn breeders, in 1872, it was decided to publish a consolidated herdbook, the first volume of which appeared in 1883 as Volume 24.

The Shorthorn is the largest of the beef breeds. As a rule, when raised under favorable conditions the mature bulls weigh between 1,800 and 2,400 pounds, and the cows usually weigh between 1,300 and 1,600 pounds. These cattle have great adaptability and do well almost everywhere. They may vary in color from all red or all white to any combination of red and white, and a blending of the red and white hairs (roan) is a popular color. The Shorthorn crosses well with scrub and grade cows, the calves of such matings develop-

ing into desirable beef cattle. The bulls are very prepotent and have been used freely in grading up the scrub cattle of the plains, in both this country and South America.

Some of the other breeds excel the Shorthorn in grazing ability where feed and pasture conditions are not favorable. The Shorthorn thrives best where grasses are abundant and feed plentiful. Under these conditions it is not equaled by any other breed. The Shorthorn is early maturing, "growthy," and fattens readily.

Of all the beef breeds the Shorthorn excels in milk production, the large milk flow insuring a good calf. For this reason the Shorthorn cow is favored on many small farms to supply milk for the family in addition to raising a calf for beef. The steers sell readily as feeders and produce a very high-class beef with a thick loin and full hind quarter which furnish profitable cuts.

In conformation the Shorthorn is wide, deep, lengthy, and thickly fleshed—a good beef type. The great width of back and the straight lines of the Shorthorn, together with its depth, give a more rectangular form than that of any of the other breeds, although the wide distribution of the breed has caused a slightly greater difference in this respect to be recognized than in other beef breeds.

In the cow the following points should be noted: The horn is usually small and curved forward, with the tips pointing inward, upward, or sometimes downward, and should be of a waxy, yellowish color. The head should be shapely, with great width between the eyes, short from the eyes to the muzzle, which should be large and flesh-colored, with large, open nostrils. A black muzzle is objectionable to most breeders. The neck should be short and full, blending well into head and shoulder. The shoulders should be smooth and well covered with flesh. The crops should be full, the heart girth large, and the foreflank low. The chest should be wide and deep, with the brisket thick and well to the front. The ribs are usually well sprung and the barrel well developed. In good individuals the back is broad and the loin is wide, deep, and thickly fleshed. The hips are wide and should be well covered with flesh; the rump is long, wide, and level, carrying an abundance of flesh. The hind quarter is well developed in the Shorthorn, and it is characteristic in that it is almost straight from the root of the tail to the hocks; it is wide and thick, carrying the flesh well down, thus giving a maximum quantity of flesh. The flank is low; the udder is usually well developed, extending well forward, with prominent milk veins. Teats of medium size are preferred.

The bull should possess the same desirable features as the female, without her feminine qualities. He should show masculinity by developing a heavier horn, a larger and thicker neck, a heavier bone throughout, and greater depth, thickness, and scale. His horns are

heavier and less curved than the cow's, but they should not show undue coarseness.

The Shorthorn has been criticized in the past and is still criticized, although much less generally, for a lack of fullness or development over the crops, a high fore flank, and a poorly developed heart girth, and for being somewhat "leggy" and having a tendency to patchiness near the root of the tail and "rolls" on the sides. The breeders have made rapid progress in overcoming these faults. The improvement in this respect during the last 10 years has been very noticeable, resulting in low-set, thick-fleshed animals, with great smoothness throughout.

For the benefit of persons desiring information as to the principal lines of breeding in this country, the following has been furnished by the American Shorthorn Breeders' Association:

The 10 bulls which have probably done most for the improvement of Shorthorn cattle as a breed during recent years are as follows: Whitehall Sultan 163573; Choice Goods 186802; Cumberland's Last 229822; Avondale 245144; March Knight 188105; Villager 295884; Cumberland 118578; Merry Hampton 132572; Lord Banff 150718; and Whitehall Marshall 209776. The most popular families of Shorthorns in this country at the present time are Augusta, Missie, Victoria, Duchess of Gloster, and Orange Blossom.

The office of the secretary of the American Shorthorn Breeders' Association is at 13 Dexter Park Avenue, Chicago, Ill.

POLLED SHORTHORN.

The Polled-Shorthorn breed was formerly known as Polled Durham. The name was changed in 1919 because not more than 5 per cent of the animals now being recorded in the Polled Shorthorn Record are other than "double standards." The "single standards" were produced by breeding polled cows to Shorthorn bulls, selecting the polled offspring and breeding them to other Shorthorn bulls. This grading up was continued until the polled offspring was brought to the fifth cross, which contained $96\frac{1}{8}$ per cent or more of Shorthorn blood when they were qualified for entry in the "Polled" record only. The double standards were the polled offspring from parents both of whom were registered in the American Shorthorn Herd Book. Double standards may be recorded in both the Polled Shorthorn Herd Book and the American Shorthorn Herd Book.

The breed is similar to the Shorthorn in every way except that it is hornless. The Polled Shorthorn is a comparatively new breed of cattle and of late years has been increasing very rapidly in popularity, especially since breeding Polled Shorthorns affords an added

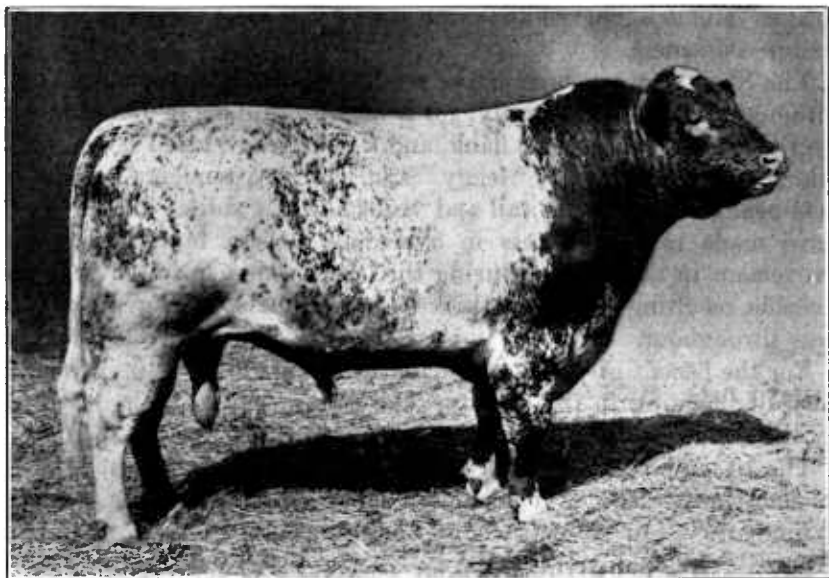


FIG. 3.—Polled-Shorthorn bull.

incentive to constructive breeding. The American Polled Shorthorn Association was organized in 1899 and its rules are such that one parent may be a horned Shorthorn, provided the other is a recorded Polled Shorthorn. There is no limit to the breeder's introducing into his Polled-Shorthorn herd the blood of any horned animal whose

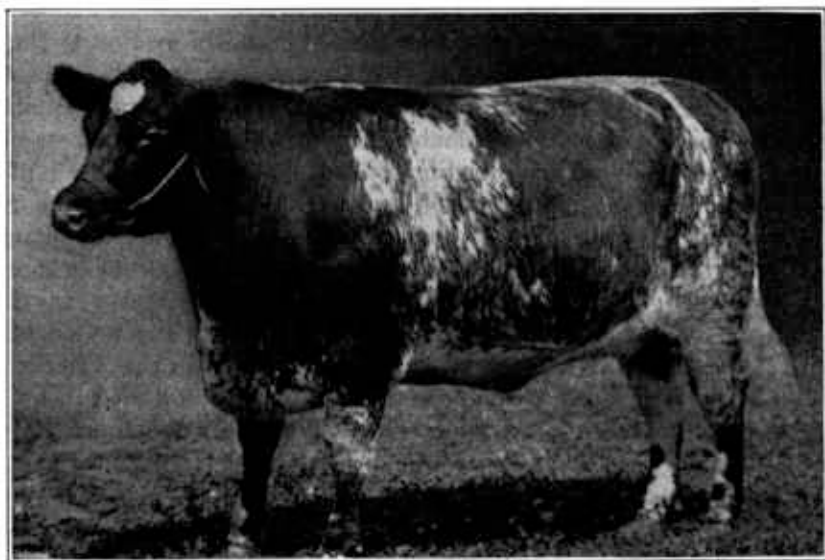


FIG. 4.—Polled-Shorthorn cow.

breeding and contour appeal to him, and since some breeders have developed the dual-purpose qualities in the animals, the result is a considerable variation in type.

According to the American Polled Shorthorn Breeders' Association, the two bulls most prominent in the early formation of the breed were Young Hamilton X 49 S. H. 114169 and Ottawa Duke X 185 S. H. 109292. In late years the Polled Shorthorn breeders, as well as the horned-Shorthorn breeders, have been using the blood of the wonderfully prepotent and noted bull Whitehall Sultan 163573. The breed has been developed largely by the use of Sultan blood, and it may be stated that there is scarcely a prominent herd of Polled Shorthorns but has a bull carrying the blood of that sire.

The introduction of Scotch blood (through the cows tracing to Imp. Victoria 51st by Royal Duke of Gloster 29864; Imp. Princess Royal 64th by Scottish Archer 59893; Imp. Lady of the Meadow by Chancellor 68693; Imp. 12th Duchess of Gloster by Champion of England, 17526), together with that of the bull Whitehall Sultan, is believed to have wrought the greatest improvement in the breed.

The office of the secretary of the American Polled Shorthorn Breeders' Association is at Greenville, Ohio.

HEREFORD.

The Hereford ranks next to the Shorthorn in numbers in the United States. The first known importations were made in 1817 by Henry Clay and Lewis Sanders. The early development of the Herefords in America was brought about largely through the efforts of William T. Sotham and T. L. Miller. In 1881 the American Hereford Cattle Breeders' Association was formed by Hereford breeders, among whom were T. F. Sotham, T. L. Miller, W. S. Van Natta, J. M. Studebaker, and R. W. Sample. What is now Volume 1 of the American Hereford Record appeared in 1880 as the American Hereford Herd Book, being published by the Breeders' Livestock Association.

From the first Hereford cattle, because of their "rustling" ability, found favor with the western range men. On scant pastures and on the range where waterholes are far apart, the Hereford has shown its merit. Not only do the individuals of this breed thrive under adverse conditions, but they also respond readily to a favorable environment. The bulls are active, vigorous, prepotent, and very sure breeders.

The criticism formerly made of the breed because of a light hind quarter can scarcely be considered just to-day. The animals are

somewhat less rangy, more compact, and more heavily fleshed than formerly. The tendency to patchiness about the root of the tail and "rolls" on the sides is also a criticism frequently heard. While the Hereford cows have been criticized because of scanty milk flow, there are few if any that do not produce enough to raise a good calf. As a breed they have a better heart girth and seem to withstand adverse conditions better than the Shorthorns. They mature early and fatten readily in the feed lot.

The weight of the Hereford cattle is only slightly less than that of the Shorthorn, but the conformation is such that a Hereford looks smaller than a Shorthorn of equal weight. Mature bulls weigh from

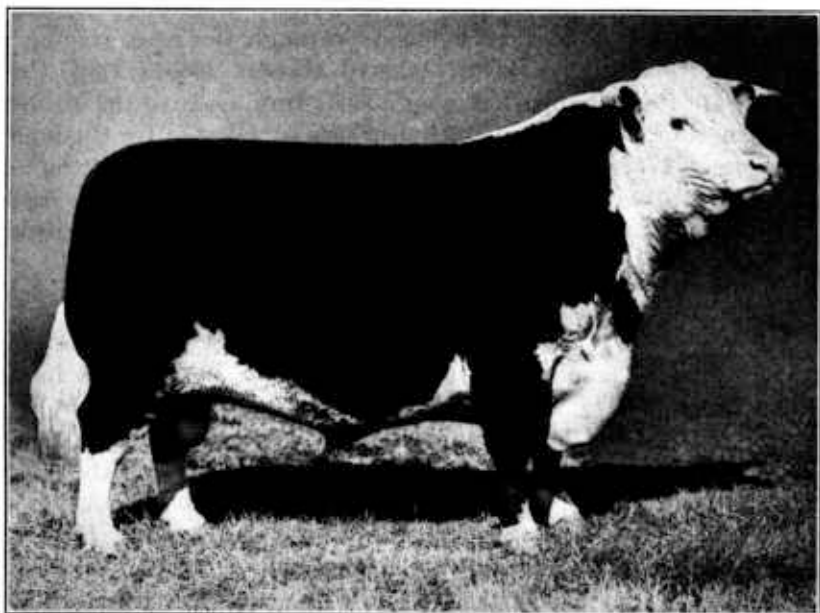


FIG. 5.—Hereford bull.

1,900 to 2,200 pounds, while the cows weigh from 1,200 to 1,600 pounds. It is not unusual for mature animals of either sex to weigh more.

The Hereford color is distinctive. It may be described as a medium to deep rich red, with white head, breast, belly, crest, switch, and legs below the knee and hock. White occurring back of the crops, high on the flank, or too high on the legs, is objectionable. A pure-white face is preferred, although many purebred animals show spots about the face and especially some red around the eyes. The hair is usually medium to long, soft and silky, with a curly tendency, but short-haired animals may be found. A characteristic of Hereford color is the dominance of the white face over the color markings

of other breeds. Calves sired by a purebred Hereford bull, as a rule, show the characteristic white face.

The Hereford possesses a conformation which represents good beef type. The body is low, compact, and blocky, with well-sprung ribs, broad loin, and wide hips without prominent hip bones. The quarter is more rounded and bulging than that of the Shorthorn, although developed to a lesser degree in this respect than the Aberdeen Angus. The forehead is broad and prominent and the face is short, tapering slightly toward the nose. The muzzle is full, with large, open nostrils. The horns are of medium size, even color, and extend from the head at right angles, level with the crops, curving forward and downward.

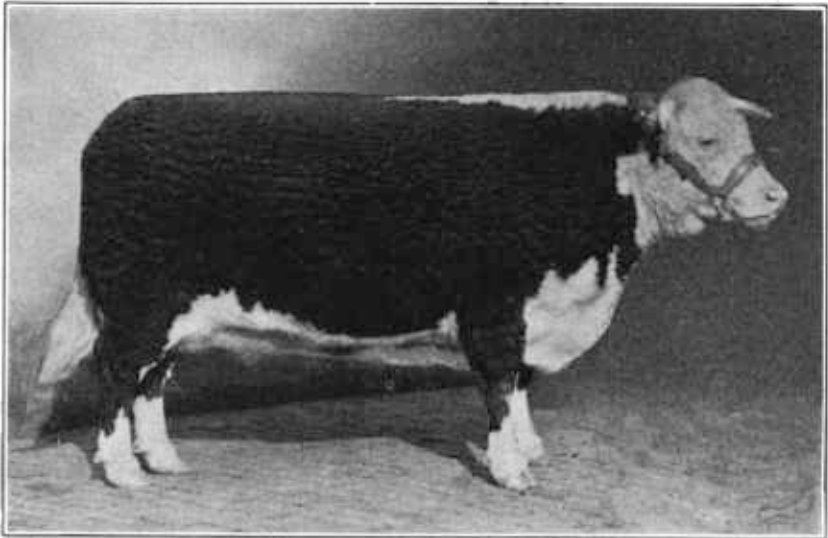


FIG. 6.—Hereford cow.

The horns of the bull are somewhat coarser, straighter, and heavier. The neck is short, thick, and blends well with the shoulders. Great width, depth, length of chest, and a fullness of the crops give the Herefords the constitution and endurance which breeders have been careful to preserve. The loin is broad and deep and the rump and hind quarters are usually well developed, carrying a large quantity of flesh. This portion of the body has been greatly improved within recent years and the tendency to roughness and patchiness has been reduced until the breed now stands out as one showing extreme beef type, with smoothness of form and much quality. For these reasons, combined with their "rustling" ability, the Hereford has become a popular breed for improving range stock. The results obtained by the use of Hereford bulls for this purpose have been very satisfactory to the cattlemen in the West and Southwest.

The marked increase in the number of Hereford breeders in the Northwest would indicate that the breed is well adapted to a very cold climate as well as to that of the South. Neither the heat in the Corn Belt nor that in the South seems to bother them. They appear to be especially well adapted for use on the larger plantations, where animals are not given extremely good care and where the production of beef alone is desired. Two or three crosses on the native stock of the South produce a good beef animal that matures early and fattens well. On unimproved plantations or on farms with only fairly good pastures the Hereford gives better results than the Shorthorn. The rapid increase in the popularity of Herefords



FIG. 7.—Polled-Hereford bull.

in this country is shown by the number of registrations and transfers in the last 2 years as reported by the American Hereford Cattle Breeders' Association.

The association mentions the following as some of the bulls which have been most influential in improving the Hereford breed during recent years: Perfection Fairfax 179767, Beau Donald 58996, Beau Brummel 51817, Bonnie Brae 8th 239653, Perfection 92891, Bonnie Lad 20th 555369, Beau Blanchard 362904, Woodford 500000, Beau Mischief 268371, Repeater 289598, Gay Lad 6th 316936, Cuba's Panama 372431, Bocaldo 362186, Gay Lad 9th 386873, Gay Lad 16th 412192, and Point Comfort 14th 337488.

The office of the secretary of the American Hereford Cattle Breeders' Association is at Eleventh Street and Central Avenue, Kansas City, Mo.

POLLED HEREFORD.

The Polled Hereford is a new breed which has been developed in America by mating Hereford cattle that are naturally polled. It was established by Warren Gammon in 1901 and has increased in numbers and popularity at a fairly rapid rate in the last few years. Because a large percentage of the calves from horned-Hereford cows mated with Polled-Hereford bulls are without horns or even scurs, the Polled-Hereford breed has developed more rapidly than

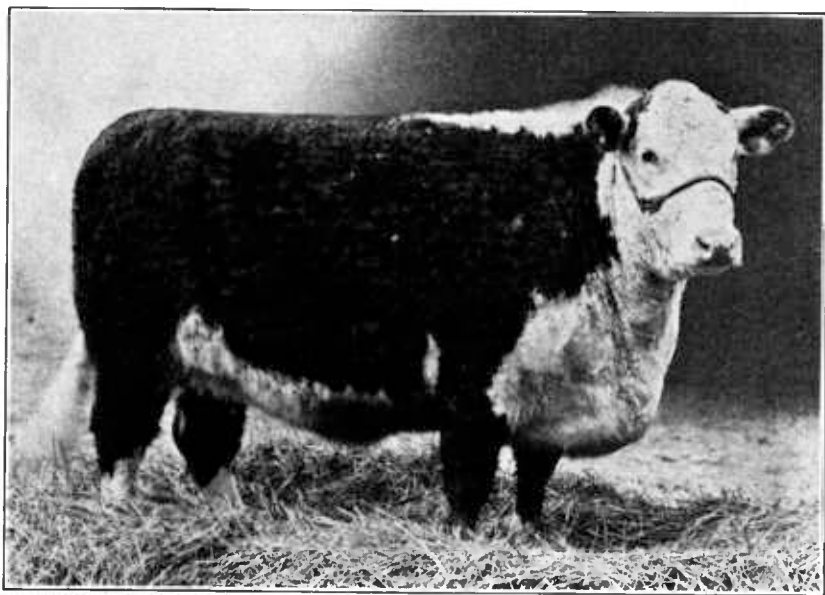


FIG. 8.—Polled-Hereford cow.

would have been possible otherwise. The popularity of polled cattle is steadily increasing, especially where farming is done on a comparatively small scale.

The double-standard Polled Herefords are eligible to registry in both the American Hereford Herdbook and the American Polled-Hereford Record. They may be distinguished from the Hereford only by the polled characteristics.

The American Polled-Hereford Breeders' Association has supplied the following information: The two original bulls which have done most to mold the breed are: Giant (1) 101740, and Variation (14) 152699. Notable present-day sires are Echo Grove (297) 306948, Bullion 4th (3062) 428447, Polled Plato (884) 353393, Polled Re-

peater (10645) 602679, Gemination 2d (3231) 447151, and many other younger bulls just coming into prominence.

The American Polled Hereford Cattle Breeders' Association was formed in 1907. The office of the secretary is at Des Moines, Iowa.

ABERDEEN ANGUS.

The first known importation of Aberdeen-Angus cattle was made by George Grant, of Victoria, Kans., in 1873. Various other importations were made between the years 1878 and 1883. Although this breed was not introduced until nearly half a century after the

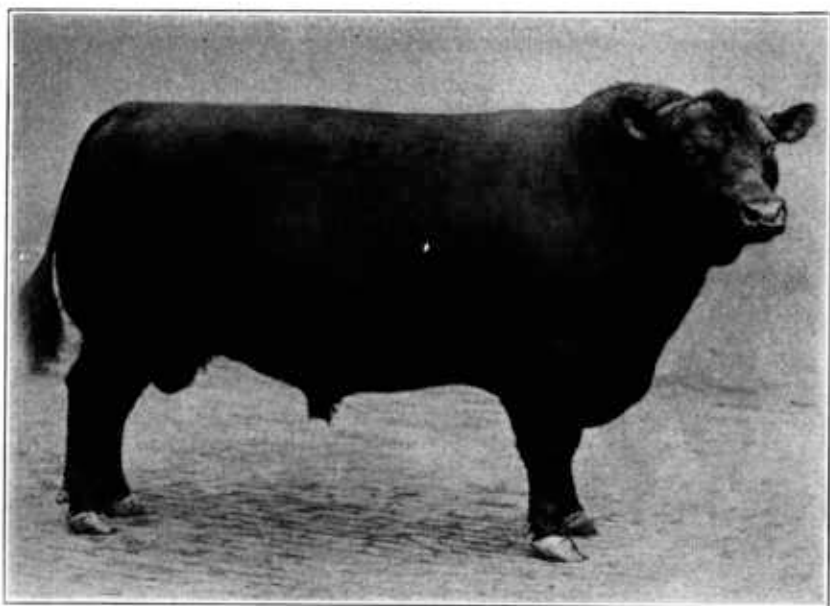


FIG. 9.—Aberdeen-Angus bull.

first importations of Shorthorns and Herefords, its increase has been very rapid and at the present time herds of Aberdeen-Angus cattle are found in nearly every State.

Aberdeen-Angus cattle are solid black in color and have no horns. Those characteristics are so strongly developed that a bull, when bred to horned cows of various colors, usually produces calves of which 85 per cent or more are black in color and 90 per cent or more are hornless. A purebred Aberdeen Angus which is red in color or which has white except to a moderate extent on the underline behind the navel is not eligible for registry as a breeding animal. However, the objectionable colors mentioned would not prevent a purebred Aberdeen-Angus steer from being registered.

While Aberdeen-Angus cattle are good rustlers, they have never been so popular on the ranges of the West as either the Hereford or the Shorthorn. They stand next to the Hereford and above the Shorthorn as grazers on scanty pastures. They are extremely valuable for grading up native cattle, but have been criticized to a certain extent by range men because they do not get a greater percentage of calves. If all the bulls in a herd were either polled or dehorned there would doubtless be less ground for this claim. The milking qualities of the cows are only fair; they give more milk than the Hereford, but not so much as the Shorthorn. A sufficient quantity of milk is produced to raise a good calf.



FIG. 10.—Aberdeen-Angus cow.

Cattle of this breed mature very early and have a tendency to fatten well at any age; hence their popularity for producing baby beef. In general form they are different from the Shorthorn or the Hereford. The body, more cylindrical in shape, is smoother throughout than either of the breeds named. In size they are smaller than either Shorthorn or Hereford. Mature bulls usually weigh from 1,800 to 2,100 pounds and mature cows from 1,200 to 1,500 pounds. Angus cattle respond quickly to good treatment, and because of their readiness to fatten, early maturity, exceptional vigor, high quality, general smoothness and uniformity, and the high percentage of valuable meat produced are popular among cattle feeders. They usually dress out a higher percentage of marketable meat than any

other breed. Their merit in this connection has been shown repeatedly in the show ring and on the block.

They stand either heat or cold well and are popular in the South as well as in the Corn Belt. Because of their reputation for finishing smoothly and "killing out" well, the better-bred steers are very popular in the Corn Belt and in neighboring States where much feeding is done. They are becoming more popular in the South and rank next to the Hereford and above the Shorthorn in their general adaptability to average unimproved southern conditions. On the ranges in the extreme South, Florida in particular, the Angus has become the favorite breed with a majority of the ranchmen because of its ability to withstand the heat of that section and because it does especially well under prevailing range conditions.

The head of the Angus shows a sharp, tapered poll, great breadth between the eyes, a prominent forehead, prominent eyes, a nose of medium length, a large mouth and muzzle, and large nostrils. The Angus is somewhat more restless or nervous than the Shorthorn or Hereford. The neck is short and full, and the bull has a well-developed crest, but the neck does not always blend smoothly with the shoulders, which are sometimes a little prominent. The chest shows great depth, width, and length. The body does not show the squareness or blockiness of the Shorthorn and the Hereford, but is noted for its compactness and good covering of flesh. The ribs are curved, long, and well sprung, and give a cylindrical form to the body. The loin and rump are well fleshed and deeply covered, but are entirely different in shape from the Shorthorn, as the great width and squareness are absent. The deep covering of flesh on the rump, the smallness of bone, and the deep, rounding, bulging hind quarter give a maximum quantity of meat. Note in the illustrations the difference in the hind quarters of the Angus and the Shorthorn. The latter is broad and straight from the pinbones to the hocks, while the Angus has less breadth and a very rounded, bulging quarter, with a deep twist. The Angus is not so low in the flank as the Shorthorn.

The quality of the animal is unsurpassed, as is shown by the soft, pliable, mellow skin, and fine hair. The meat is fine-grained and of the highest quality. The constitution and vigor of this breed, as indicated by a well-developed chest and good heart girth, are worthy of mention. For grading up native stock and for crossing they hold an enviable record.

We are informed by the American Aberdeen-Angus Breeders' Association that some of the bulls which have been most prominent in improving the Aberdeen-Angus breed during recent years are Heather Lad of Emerson 2d 19049, Black Monarch of Emerson

30331, Black Woodlawn 42088, Lucy's Prince 46181, Prince Ito 50006, Baden Lad 61883, Blackbird Ito 64116, Star of Denison 82426, Sir Blackbird 98347, Earl Eric of Ballindalloch 100422, and Undulata Blackcap Ito 2d 116275. The leading families in this country at the present time are Blackbird, Trojan Erica, Pride of Aberdeen, Queen Mother, and Heather Bloom. The American Aberdeen-Angus Breeders' Association was formed in 1883 and published Volume 1 of the Herd Book in 1886. The office of the secretary is at 817 Exchange Avenue, Chicago, Ill.

GALLOWAY.

It is not known when Galloway cattle first made their appearance in the United States, but in 1870 they were introduced into Michigan and spread to the Central West and later toward the Northwest. In the latter sections they have taken their place because of their hardy nature and exceptional "rustling" ability. They do not respond so readily to careful feeding and expert management as the other breeds and therefore have not become popular in the Corn Belt States.

Although Galloway cattle are naturally polled, occasionally an animal develops scurs. Accordingly, the American Galloway Breeders' Association reserves the right to cancel the entry of any animal which has developed scurs, either before or after being recorded. Solid black is the characteristic Galloway color, with perhaps an occasional brownish tinge to the long, wavy hair, which is underlaid by a somewhat silky coat of short hair. White markings above the underline or white feet or legs make Galloway cattle ineligible for registry as breeding animals. The bulls of this breed are very prepotent and transmit the black color and polled characteristics readily to their offspring from cows of any color, as high as 90 per cent of the calves from various colored cows being black, and approximately 95 per cent of the offspring from horned cows polled. This breed is slow maturing when compared with the Aberdeen Angus or the Hereford. In size the Galloways are smaller than any of the other beef breeds. Mature bulls usually weigh from 1,700 to 1,900 pounds, and mature cows from 1,000 to 1,300 pounds each.

In form the Galloway is low-set and deep, but proportionately longer than the Aberdeen Angus and flatter of rib. The head is somewhat similar to that of the Angus except that the poll is not so sharp. The head is covered with long, wavy hair, and the ear is set farther back from the forehead. The body is long and of medium depth. The rump is long and well filled, although the tail head is usually set rather high. The hind quarter is usually good, being full, similar to that of the Angus. The bone is fine, the skin mellow,

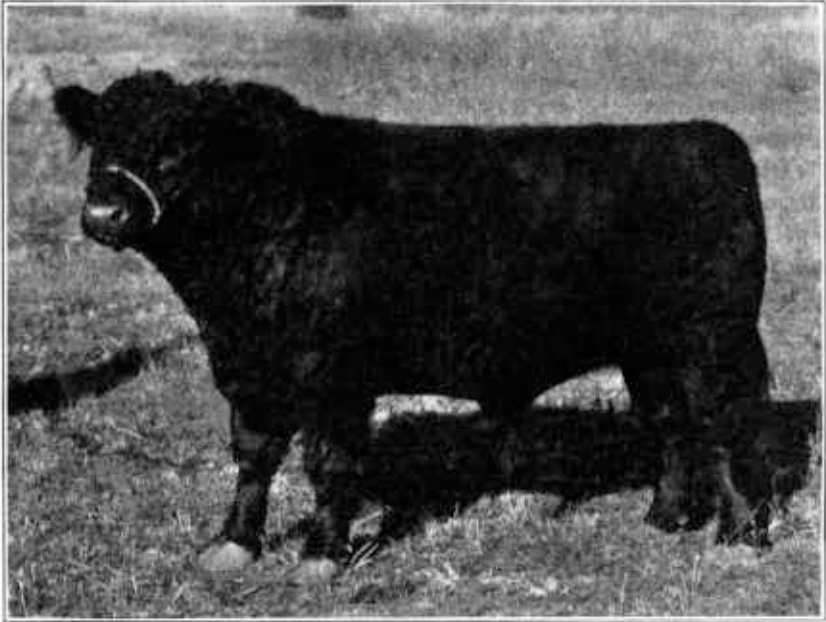


FIG. 11.—Galloway bull.

the hair soft and silky, and the grain of the meat fine and of high quality. Little attention has been devoted to the milking qualities of Galloway cows, but they give milk enough to raise a good calf.

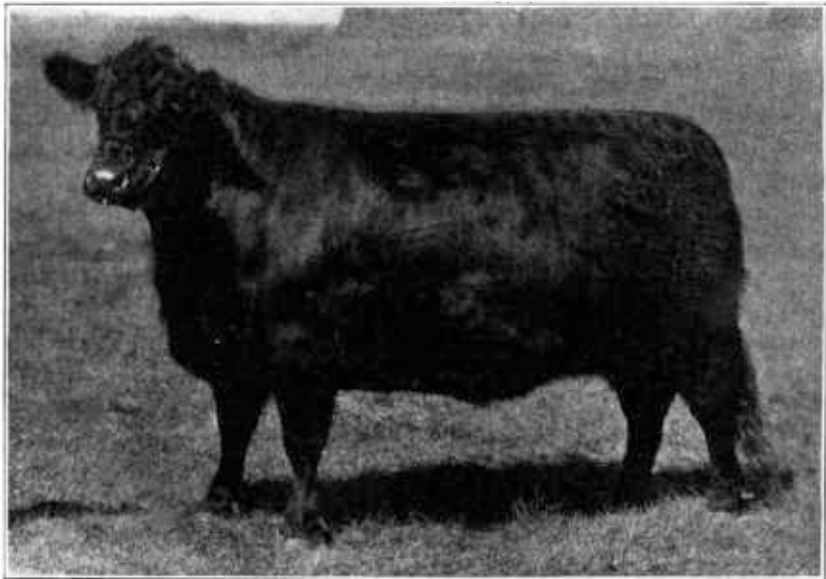


FIG. 12.—Galloway heifer.

The milk is regarded as testing high in butterfat and being of good quality. The Galloways have commanded special attention because of their prepotency, as shown by the uniformity of the offspring when the bulls are used for grading up or for crossing.

This breed will probably be most popular in the Northwest, where climatic conditions are severe and the range grasses are often scant. In that section the bulls are used advantageously for grading up native stock.

According to the American Galloway Breeders' Association the following bulls have played a most important part in the improvement of this breed of cattle during recent years: Worthy 3d 21228 (7762), Scottish Standard 15221 (6488), Druid of Castlemilk 17054 (6159), Captain 4th of Tarbreoch 30933 (9701), Great Scot (6489), Bondsman (7306), Excelsior (7702), The Pathfinder 3d (5991), Keystone (9689), and Sweepstakes (10001). The most popular families, ranking in the order named, are: Maggie, tracing to Maggie of Blackpark (6046); Alice, tracing to Alice of Castlemilk (14282); Nancy Lee, tracing to Nancy Lee of Castlemilk (11971); Lizzie, tracing to Lizzie of Breckonhill (3366); Dora, tracing to Dora of Priesthaugh (7008); and Lady Stanley, tracing to Lady Stanley (1670). The American Galloway Breeders' Association was formed in 1882, and Volume 1 of the Herd Book appeared a year later.

More detailed information concerning the Galloway cattle can be obtained from the secretary of the American Galloway Breeders' Association, Carrollton, Mo.

COMPARATIVE STANDARD OF EXCELLENCE FOR THE BEEF BREEDS.

COLOR.

Shorthorn.—Red, white, red and white, roan, (blended red and white hairs). Roan is typical of the Shorthorn breed.

Hereford.—Medium deep rich red, with white head, crest, breast, belly, switch, and white below the knees and hocks; white elsewhere is not desirable.

Aberdeen Angus.—All black preferred, but a moderate amount of white on underline behind the navel is tolerated.

Galloway.—Black, with brownish tinge.

WEIGHT.

Breed.	Mature bulls.	Mature cows.
	<i>Pounds.</i>	<i>Pounds.</i>
Shorthorn.....	1, 800 to 2, 400	1, 300 to 1, 600
Hereford.....	1, 900 to 2, 200	1, 200 to 1, 600
Aberdeen Angus.....	1, 800 to 2, 100	1, 200 to 1, 500
Galloway.....	1, 700 to 1, 900	1, 000 to 1, 300

HEAD AND NECK.

Shorthorn.—Head shapely, with great width between the eyes; short from eyes to muzzle; flesh-colored muzzle; ears fine, erect, and hairy; horned types having yellow, waxy, comparatively small and short horns, curving in at the tips (Polled breed showing complete absence of horns or scurs); wavy hair over poll; neck short and full, blending smoothly with the shoulders; full crest in mature males.

Hereford.—Forehead broad and prominent; short face, slightly tapering toward nose, with full, flesh-colored muzzle; nostrils wide and open; ears well set and well covered with hair; horns of medium size, smooth, and flesh colored, coming from head at right angles, curving forward and downward (Polled breed showing complete absence of horns or scurs); short, thick neck, spreading out to meet shoulders; with full neck vein; free from loose skin; full crest in mature males.

Aberdeen Angus.—Forehead broad; face slightly prominent and tapering toward the nose; distance from eyes to nostrils moderate; muzzle fine and black in color; poll well defined, pointed, and without horns or scurs; ears hairy and well set; jaws and throat clean; neck of medium length, muscular, and spreading out to meet the shoulders.

Galloway.—Head short, wide, with broad forehead and wide nostrils; poll flat, with no evidence of horns or scurs; ears with long hair and set rather further back than most breeds, pointing upward and forward; moderate length of neck, clean, and filling well into the shoulders, with a top line level with or slightly higher than the back.

SHOULDERS.

Shorthorn.—Smooth and well fleshed, inclining well into the back; low set and smoothly fleshed brisket; legs straight and wide apart.

Hereford.—Smooth, thickly fleshed, well laid in; low-set and broad brisket; short, straight legs, wide apart.

Aberdeen Angus.—Moderately oblique, well covered on blades and top, with moderate breadth across top; brisket deep and projecting forward somewhat; well fleshed; legs short, straight, and squarely placed.

Galloway.—Fine and straight; moderate width at top; well-fleshed legs of moderate length, straight, and squarely placed.

BODY.

Shorthorn.—Long, wide, deep; chest with wide-sprung ribs; broad back, with wide, deep, and thickly fleshed loin; top and underline straight, with deep, full flanks.

Hereford.—Wide, deep, round, and full just back of crops; ribs well sprung from backbone, close together, long and arched, carrying the full width of the shoulders and deeply and smoothly covered; back and loin broad, straight, and heavily covered from crops to hooks.

Aberdeen Angus.—Cylindrical; chest round and full just back of elbows; ribs well sprung, arched and deep, neatly joined to the crops and loins; back broad and straight from crops to hooks, with strong loins.

Galloway.—Rectangular, with full chest, and deep, somewhat flattened ribs; straight back of moderate length; loins well filled.

HIND QUARTERS.

Shorthorn.—Wide and thick, fleshed well down; straight from root of tail to hocks; long, wide, level, and well-fleshed rump, with hook bones well covered.

Hereford.—Long, straight, muscular, full, deep, and thick; rump long, wide, smooth, and well covered, carrying width in proportion to width of back; flesh on hooks blending smoothly with quarters; fleshed well down the legs.

Aberdeen Angus.—Deep and full, thighs thick and muscular and in proportion; twist filled out well in its "seam" so as to form an even, wide plain between the thighs; rump long, full, level, and rounded neatly into the hind quarters.

Galloway.—Long, moderately wide, and well filled, with a deep and full flank; hook bones well covered and rump well fleshed; tail well set on and moderately thick.

FLESH.

Shorthorn.—Heavy, but smoothly laid.

Hereford.—Deep, firm, smooth, uniformly covering all parts, and free from patchiness.

Aberdeen Angus.—Deep and even, without patchiness.

Galloway.—Smooth and firm.

SKIN AND HAIR.

Shorthorn.—Skin soft and pliable with an abundance of mossy hair, frequently fine undercoat, overlaid with longer, soft hair.

Hereford.—Skin of moderate thickness, mellow, pliable, and loose, abundantly covered with moderately long, thick, silky hair, which is usually curly.

Aberdeen Angus.—Skin mellow and of moderate thickness; an abundance of thick, soft hair, with a tendency to curl.

Galloway.—Skin moderately thick and mellow; soft and wavy, fairly long hair with a mossy undercoat.

DISQUALIFICATIONS.

A calf from registered, polled parents that develops horns or scurs is not eligible for registration in any of the herdbooks of the polled beef breeds, and each polled breed association reserves the right to cancel the name of any animal which develops horns or scurs after having been registered. Moreover, the Aberdeen-Angus Breeders' Association will not register an individual possessing any red color or white, except when appearing on the underline back of the navel, and the Galloway Breeders' Association bars from registration any animal with white above the underline, or one having white feet or legs.

DUAL-PURPOSE BREEDS.

The principal dual-purpose breeds of cattle in the United States are certain types and families of the Shorthorn, together with the Red Polled and Devon. Brahman or Zebu cattle are sometimes included in this class. They are, however, used almost exclusively for the production of beef in certain restricted sections of this country.

The dual-purpose breeds have been bred to produce females which would yield a good quantity of milk and produce offspring which would be desirable for beef. As the type of animal necessary for

the production of large yields of milk is entirely different from that of the beef animals, it has been impossible to produce a breed which would combine these functions and be of superior merit for both purposes. The dual-purpose animal, however, may be a desirable milker and at the same time produce calves which make good, though not superior, beef animals. As there has been a constant tendency for some breeders to incline more to the type of animals producing more milk, while others prefer to develop the beef tendencies, there has been and probably always will be a wide variation in the type of dual-purpose animals. They are not so uniform in conformation as either the strictly beef or dairy breeds. Most breeders prefer to use cows which approach the dairy type more

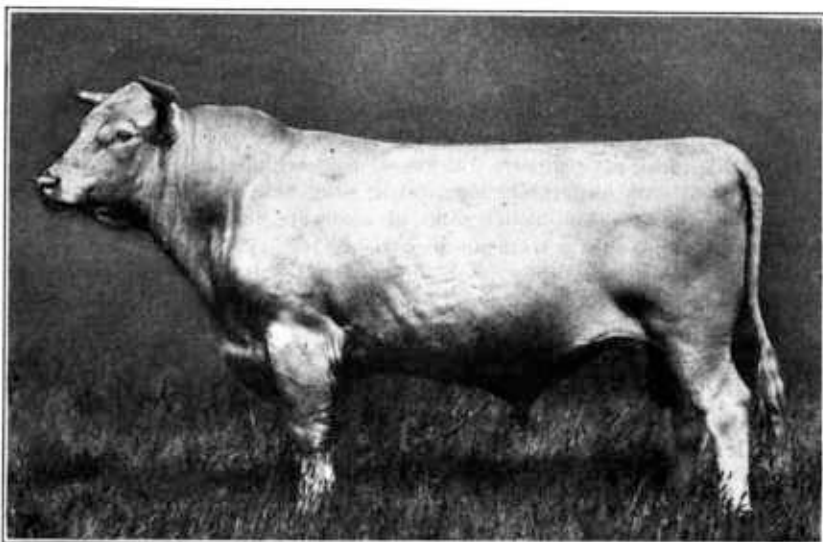


FIG. 13.—Milking-Shorthorn bull.

nearly than the beef type and to use a bull of the beef type that had a dam with a good milk record. The offspring of such cattle necessarily can not be of so uniform a type as the breeds which have but one function to perform.

The dual-purpose cattle are popular with the small farmer who keeps but a few cattle and must depend upon them to produce all the milk and butter needed for the family and at the same time raise calves or steers which will sell readily for slaughter purposes. They have not been popular with the ranchman or farmer who raises large numbers of cattle.

MILKING SHORTHORN.

The Milking Shorthorn leads the dual-purpose breeds in numbers and general popularity and is most widely distributed. Formerly

development followed the use of the Bates strains, and later many crosses containing Scotch blood were produced. In recent years improvement is being brought about by introducing the blood of bulls imported from England, where the Shorthorn is popular as a milk breed.

As a breed the Milking Shorthorns are the same as the beef-bred Shorthorns, being registered in the American Shorthorn Herd Book, except that in conformation they are less thick and blocky than the beef Shorthorns. Although the extreme angularity displayed by the dairy cow is not desired, the development of the milking quality has resulted in a type of Shorthorn which is longer of limb, higher in the flank, lighter in the hind quarter, and larger of barrel than the

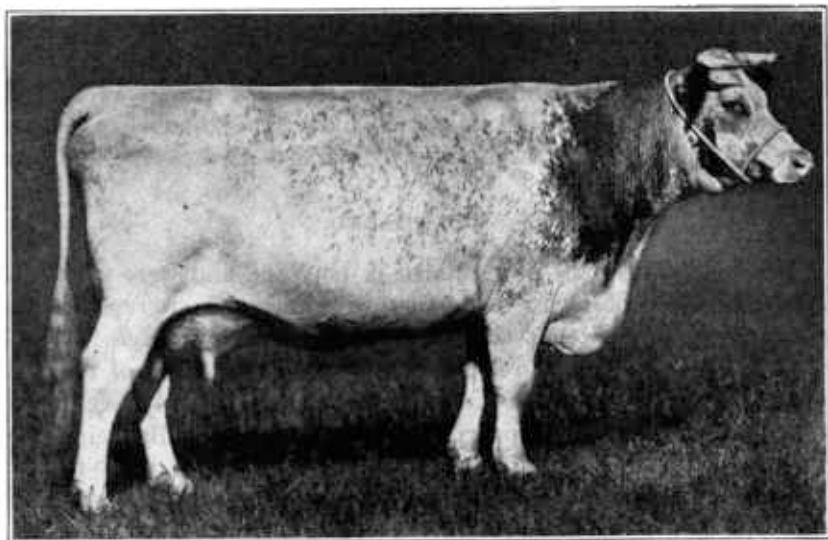


FIG. 14.—Milking-Shorthorn cow.

beef type. The udder extends high up in the rear and well forward, the milk veins are usually very prominent, and the teats are medium to large and well set. The combination of large, roomy udder, indicating milk-producing ability, and the broad, straight, level back, indicating meat-producing tendencies, has given rise to the term "Doubledeck."

The American Milking Shorthorn Breeders' Association reports (January, 1920), the average of 833 annual milk records taken from the Milking Shorthorn yearbook to be 8,324.67 pounds, while the average of 386 annual butterfat records is 336.03 pounds. Since these records were reported as having been made under average farm conditions, and by cows of all ages, they may be considered representative of the breed.

Although the Milking Shorthorn bulls more nearly resemble the beef type than do the cows, they lack depth of flank and weight in the hind quarter, and are not so heavily fleshed as the strictly beef breeds. The Milking Shorthorn breed has produced some very creditable steers, one of which, "Clear-the-way," stood second to the champion Shorthorn steer at the 1917 International Livestock Exposition. Calves from Milking Shorthorn cows by beef bulls usually grow and fatten well and make a good quality of beef.

Ten bulls that have greatly influenced the breed in the last 15 years are: General Clay 255920, Duke Buttercup 160769, Cyrus Clay 247916, Henry Clay 112291, Knight of Glenside 247919, Knight of Glenrose 349055, Alice's Ensign 200075, Duke of Edgewood 316487, Duke of Granville 186290, and Milkman 321801.

In addition to the American Shorthorn Breeders' Association, the American Milking Shorthorn Cattle Club and the American Milking Shorthorn Breeders' Association formerly promoted Milking Shorthorn interests. The last two have now been amalgamated into the Milking Shorthorn Society, the office of the secretary being at Independence, Iowa.

RED POLLED.

The Red-Polled cattle originated in England and were introduced into the United States in 1873, but few importations were made until about 1885. Since that time many have been imported. This is strictly a dual-purpose breed, and approaches the ideal of the dual-purpose type. Red Polls are smaller than the strictly beef breeds and have not so thick a covering of flesh. Mature bulls weigh from 1,700 to 2,100 pounds or more, and the cows from 1,100 to 1,350 pounds or more. Occasionally very heavy individuals are found, but they are the exception and not the rule.

The cattle of this breed are fair grazers, ranking with or slightly ahead of the Shorthorns, but not equal to the Devon or Hereford. The bulls are very prepotent and give uniformity in offspring when bred to native cows. As with all dual-purpose breeds it has been hard to fix or hold a uniform type, because many breeders incline to beef production while others try to develop the milking qualities, to the detriment of the beef form.

This breed has long been celebrated for its early maturity, easy fleshing qualities, and fair to good milk flow. The steers have attracted attention and sold for high prices on English markets for years, and have made very creditable showings in this country. They make good daily gains, and lay on flesh evenly. They are usually rather "leggy" and lack the heavy fleshing qualities of the beef breeds. The hind quarters are less well developed, with a tendency toward a rather thin thigh and a high flank and twist.

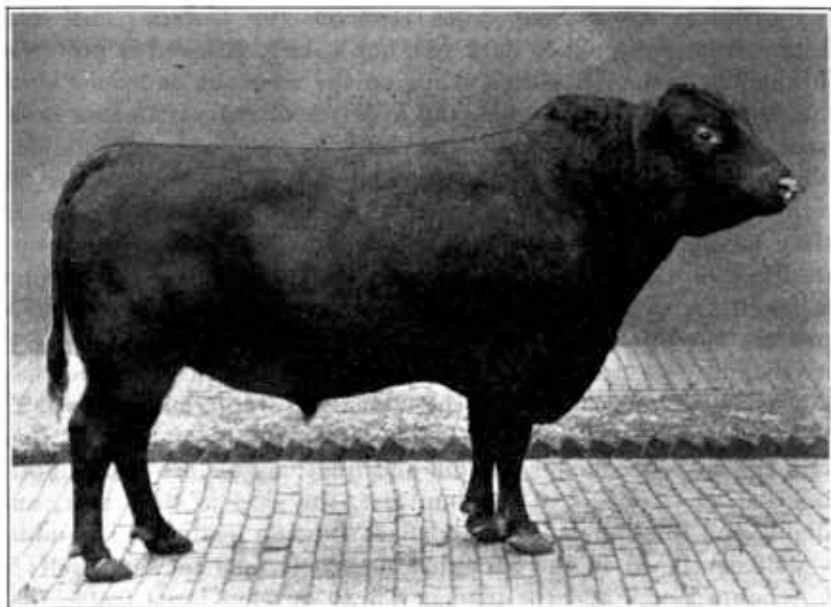


FIG. 15.—Red-Polled bull.

The milking qualities of the breed are fair. Many of the cows average above 5,000 pounds of milk a year, testing from 3.7 to 4 per cent of fat. The cows flesh up readily when dry.

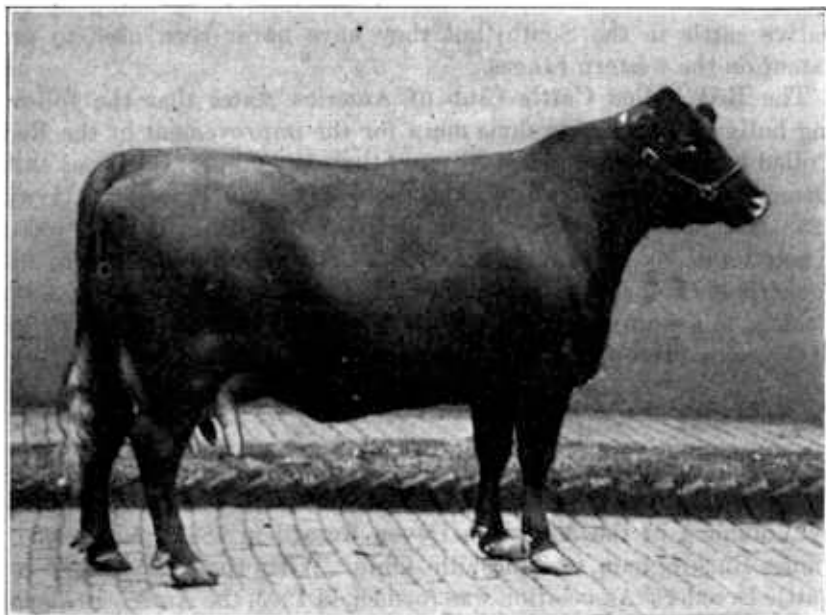


FIG. 16.—Red-Polled cow.

In conformation these cattle resemble the Devon. The color ranges from light red to dark red, but a deep, rich red is preferred throughout, although a little white on the udder or underline along the milk veins is permissible, and a switch mixed with white is desired. Any additional white markings are counted as disqualifications. The Red Polled Cattle Club of America reserves the right to cancel the registration of an animal which develops scurs after having been admitted to registry, and the progeny of such are likewise debarred from registration. The head is lean, medium in length, with a well-defined poll covered with a tuft of hair of medium length. The neck is longer and thinner than in the beef breeds and does not blend with the shoulders so nicely. The chest is usually well developed and the ribs well sprung, but lack a thick covering of flesh. The barrel is developed to a greater extent than with the beef breeds and the loin and hind quarter are more lightly fleshed. The bone is of medium size, the skin is thin, soft, and pliable and the hair is short and fine, showing quality. The udder is well developed in the back, but does not come forward well; it is "chopped off" and the tendency is to develop large teats. The milk veins are prominent and of fair size.

The Red Polls are more nervous than the Shorthorn, but less so than the Aberdeen Angus. They are a comparatively young breed and are as yet not so popular as the older breeds. As dual-purpose cattle they are hard to excel; they are popular in the Mississippi Valley States and have given excellent results for grading up the native cattle in the South, but they have never been used to any extent on the western ranges.

The Red Polled Cattle Club of America states that the following bulls have probably done more for the improvement of the Red-Polled breed during the last 20 years than any others: Corporal 4313, Demon 5421, Abbotsford 4721, Nailer 7396, One Price 8523, Irwin 8253, Cremona 13018, Logan 13500, Dafter 15871, Elgin 19464, Proctor Knott 12092, and Teddy's Best 17603. The popular families in this country at the present time are Dorothy, Luna, Pear, Lillette, Cosy, Beauty, and Constant. The secretary of the Red Polled Cattle Club of America (Inc.) is at Richland Center, Wis.

DEVON.

An American Devon Herd Book was published during the period from 1863 to 1879, five volumes being issued. This was followed by Volume 1 of the American Devon Record in 1881, published by James Buckingham, of Zanesville, Ohio. When the American Devon Cattle Breeders' Association was formed, in 1905, the American Devon Record became the official register.

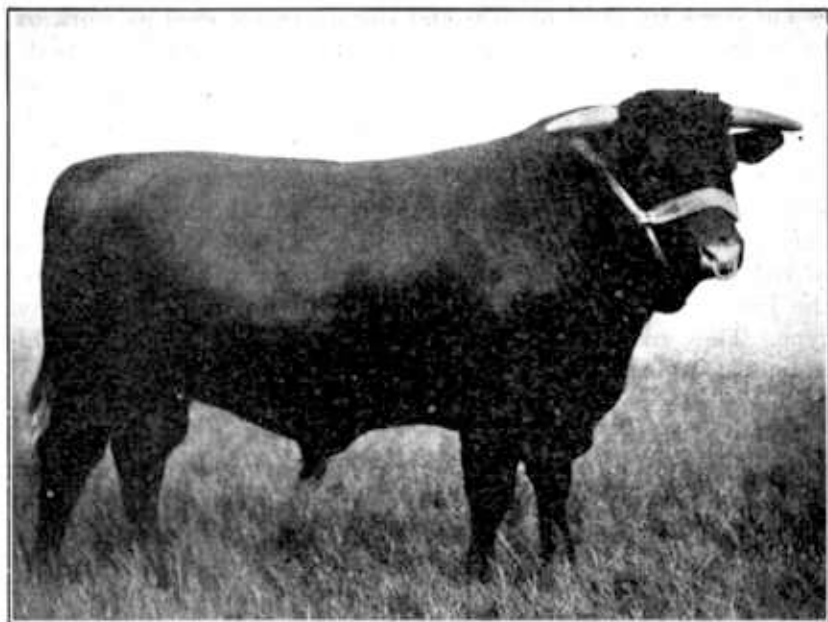


FIG. 17.—Devon bull.

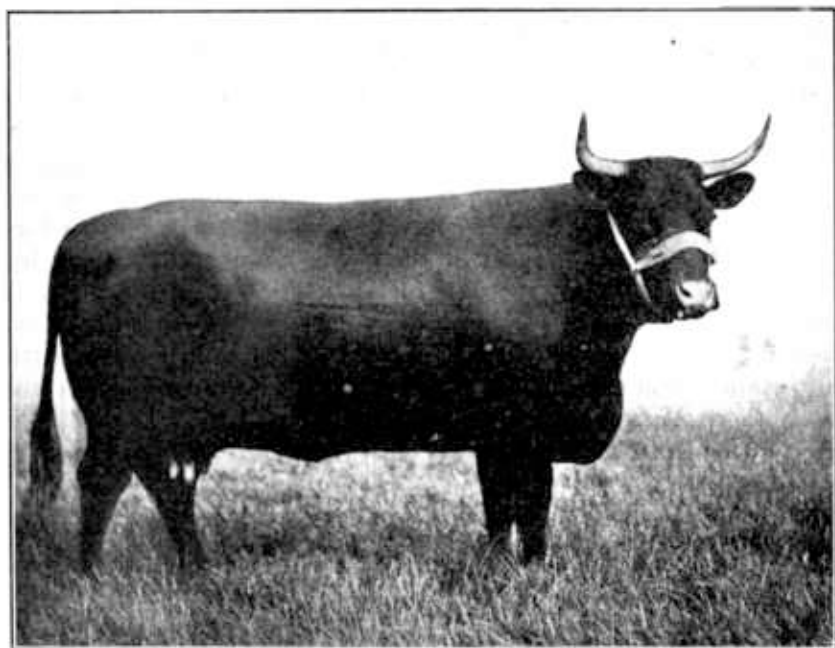


FIG. 18.—Devon cow.

The cows are good milkers and the steers are used as work oxen or for beef. Their endurance, intelligence, and gameness made them popular as work oxen wherever they were tried, and they have never been excelled in this respect.

Devons are somewhat smaller than the Red Polled, mature bulls weighing from 1,500 to 2,000 pounds and cows from 1,100 to 1,400 pounds or more. They are solid red in color, white being permitted only on the udder, or near the scrotum, and on the switch. The shade of red varies, but a rich, bright red is preferred. In conformation the Devons incline more to the beef type than to the dual-purpose type. They are close coupled, very compact, smooth, and rank high in quality and style. They have small bone, which is hard and compact, giving a slender, fine leg.

The head is lean, clean-cut, of medium length, and surmounted by rather long, white or waxy horns, which curve upward, forward, outward, and backward in the cow and are almost straight in the bull. The horns of the steers are large, long, and often widespread, usually being very white or waxy, with dark tips. The neck is medium in length, smooth, and blends nicely with the shoulder. The body is compact, fairly well covered with flesh, has well-sprung, deep ribs, and is usually low set. The chest, back, loin, and hind quarter are usually well developed, though the flank and twist are somewhat higher than in the beef breeds. The cows are fair to good milkers, giving rich milk, and always provide an abundance to produce a good calf.

The Devon makes a slower growth than any of the beef breeds, except the Galloway. Though the steers do not fatten so rapidly as those of the beef breeds, they produce meat fine in texture and of good quality. The fact that they are rather slow maturing and somewhat smaller than the beef breeds probably explains their lack of general popularity. In New England, however, the breed has proved to be profitable, especially on lands where grazing was rather scant or of poor quality. Devon bulls are very prepotent and have been used very satisfactorily in grading up the native range cattle in certain sections in the South, especially in parts of Florida and in southern Mississippi. Steers showing considerable Devon blood have demonstrated their ability to withstand very unfavorable conditions.

Information concerning Devon cattle may be obtained from the secretary, American Devon Cattle Club, 51 Cornhill Street, Boston, Mass.

BRAHMAN OR "ZEBU" CATTLE.

Under the names Brahman or Zebu cattle are classed different families of cattle of the species *Bos indicus*. Some families vary so

in type, color, size, and habitat that they are classified as separate breeds. The most important are the Kirshna Valley and Hissar breeds. These cattle are classed as dual-purpose animals in their native countries, as many of the females give a good quantity of milk. They are used quite generally in India as milk cows and are more satisfactory than any other cattle under the severe conditions of drought, heat, insect enemies, disease, etc. As this breed has been for more than 3,000 years in a hot climate, it is suitable only for the extreme southern portions of this country, where it has been developed almost exclusively as a beef breed.

Brahman cattle were first imported in 1853 for use in the range areas in the South and Southwest, where other cattle did not do well on account of disease and the attack of numerous parasites, such as the tick, screw worm, fly, and mosquito. Although they are a different species from our common breeds of cattle, they cross readily with them. The females carry their calves somewhat longer than other cattle, the period of gestation being about 300 days. It was found that offspring from Brahmans crossed with our native cattle were not only somewhat resistant to ticks, but were good rustlers, made a rapid growth, and gave a high dressing percentage as well.

In size the bulls range from 1,500 to 1,800 pounds, and many of them attain a height of 6 feet, while the cows usually weigh from 1,100 to 1,400 pounds. The various families of these cattle have different colors, although each family has a fixed color. The colors are pure white, creamy white, silvery gray, red, and dark brown approaching black; the silvery gray, with dark fawn on shoulders and neck, and the creamy white are the most popular. Many of the animals, however, have brindle stripes on the body.

The distinguishing characteristics of the breed are the large hump on the withers, the large, loose folds of skin forming the dewlap and the navel, the long, drooping, pendulous ears, and the extremely tough hide with scanty hair covering and abundant oil secretion having a peculiar odor. The head is also characteristic of this breed, as it is long, with a forehead which recedes from the eyes to the horns, while the horns forming the brow are prominent. The head tapers gradually from the eyes to the nostrils; the horns are dark, short, straight, heavy at the base, and point upward and backward. The ears are very long, drooping, thin, and oily, frequently almost devoid of hair. The eye is mild and sleepy, but changes quickly in expression when the animal is aroused. The neck is of medium length and has heavy folds of skin forming an overdeveloped dewlap with fullness at the throat. The body is deep but rather narrow; the hips are long, sloping, and narrow, and the rump often droops toward the tail. Extreme depth of flesh is quite characteristic of

the breed. The legs are long, tapering, and show a strong bone free from coarseness. A very heavy sheath is developed and in old bulls often hangs 9 inches or more below the belly.

The hump is large in the males, attaining a height of from 12 to 16 inches, but is not so large in the females. This hump is not made up of reserve fat but is largely muscle. The half-bred males may have a moderately developed hump, but the half-bred females have none. The second generation, however, possesses the hump, with other Brahman characteristics. Animals which have as little as one-sixteenth Brahman blood usually show some Brahman char-

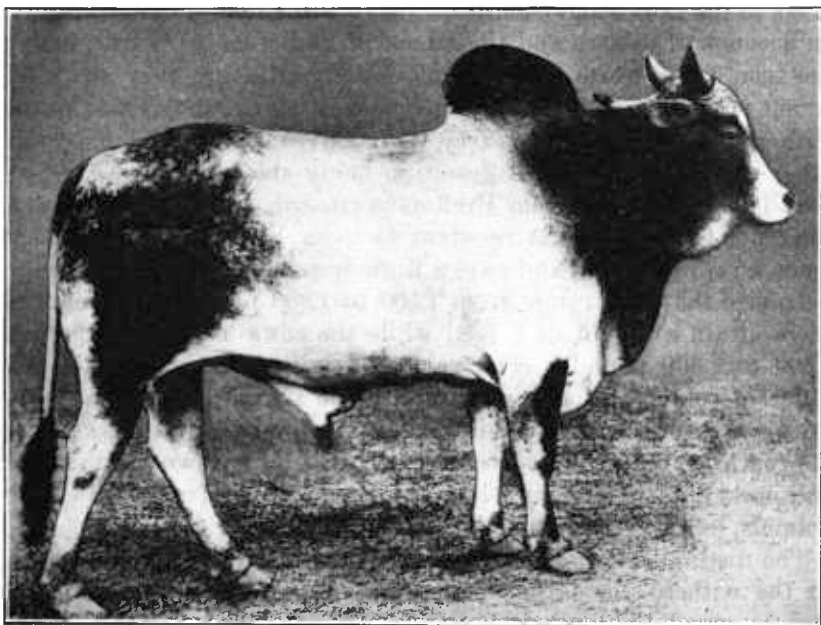


FIG. 19.—Brahman bull.

acteristics, especially in the shape of the head and the loose folds of skin forming the dewlap and navel.

These cattle stand heat well and have great endurance, moving readily in a fast walk or trot. They make good work steers if handled constantly by one driver. They have a nervous disposition, and considerable trouble is encountered when drivers are frequently changed. When raised in small herds and handled constantly they become quite gentle, but when handled under range conditions they become wild and take fright readily.

The oil secreted by the sebaceous glands of the skin is of a peculiar odor and gives the skin a soft, oily feeling. This peculiarity, com-

bined with the scant covering of hair and the extremely tough hide, affords the animals considerable protection from ticks, mosquitoes, screw worms, etc. It is also from these peculiarities that the statement is frequently made that the purebred cattle, or even the grades, possess a certain immunity from tick fever. Their ability to withstand drought conditions and to make rapid gains under favorable conditions on the range has gained them considerable favor in many sections.

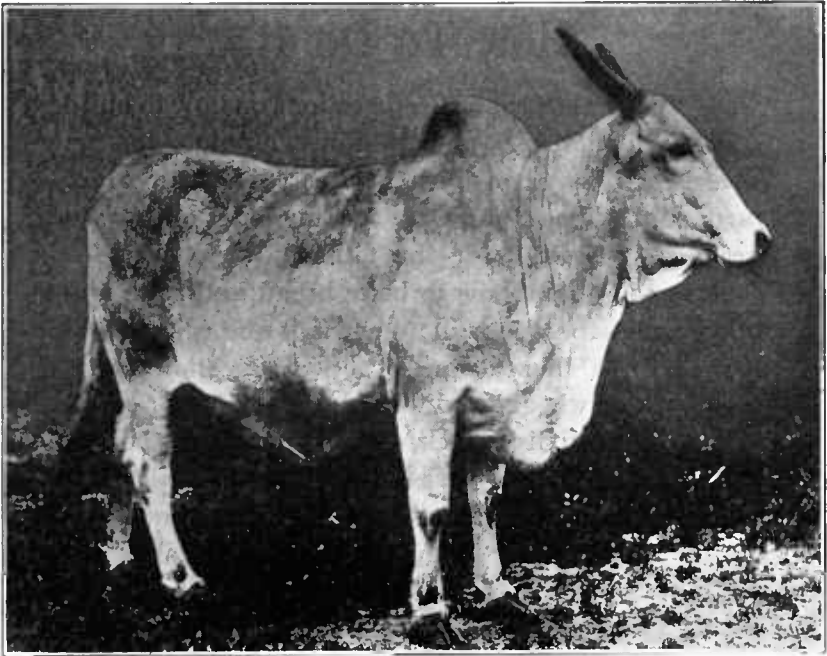


FIG. 20.—Brahman heifer.

While the value of the crossbred Brahman cattle as feeder stock has not been fully determined, it is generally thought that under favorable conditions they will be satisfactory, although this factor will doubtless be determined in the near future.

The work of developing the Brahman and the crossbreds for beef is being carried out in the Gulf coast section, principally in Texas and to some extent in Florida, where at present are to be found most of the Brahman cattle in the United States.

How To Do It

DO YOU want practical suggestions on how to build a silo, a hog house, a poultry house, a potato-storage house, or how to make a fireless cooker, or other farm convenience. Are you seeking ideas on how to prepare vegetables for the table, how to care for food in the home, how to bake bread and cake and other appetizing foods in an efficient and economical manner? Is there some practical question about your corn or wheat or cotton or other crops, or about your poultry or live stock, to which you are seeking an answer? The answers to thousands of such questions and practical suggestions for doing thousands of things about the farm and home are contained in over 500 Farmers' Bulletins, which can be obtained upon application to the Division of Publications, United States Department of Agriculture, Washington, D. C.